

ART. XI.—*Description of Bracebridge Wilson Collection of Victorian Chitons, with Description of two new Species.*

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(COMMUNICATED BY J. A. KERSHAW.)

(With Plate VIII.)

[Read 11th November, 1920.]

Mr. J. A. Kershaw, Curator of the National Museum, Melbourne, has placed the collection of Chitons, made by the late Mr. J. Bracebridge Wilson in connection with the Port Phillip Exploration Committee of the Royal Society of Victoria, in my hands for examination and re-identification.

This collection was dealt with in a very able manner by Mr. E. R. Sykes, B.A., F.Z.S., etc., in his paper entitled "Report on a Collection of Polyplacophora from Port Phillip, Victoria, (Proc. Mal. Soc., vol. ii., pt. 2, July, 1896.)

Since that time a great deal of excellent work has been done in Australian Chitons by quite a long list of earnest workers. In view of this more recent work, some of Mr. Sykes' identifications have to be altered. Probably in some cases he had not at that time had any opportunity of seeing actual specimens, and depended solely on descriptions for his identifications, an example of such a case being his identification of *Ischnochiton tateanus*, Bednall.

The specimens are preserved in spirit, but many are badly stained, and the valves and girdle scales disarticulated or broken away. The collection, considering the comparatively small number of specimens, is a most remarkable one, containing an extraordinary percentage of rarities.

Of the twenty-two species identified by Mr. Sykes, he described five as new, all of which are still amongst our rare, and some amongst our rarest, Chitons; but in addition to these five, were four other new species mis-identified by Sykes, and although all

of them are well-defined species, they were not described for a good many years subsequent to the production of Mr. Sykes' paper.

*Lepidopleurus*.—Specimens belonging to this genus are dealt with towards the close of this paper.

*Callochiton rufus*, Ashby (Trans. Roy. Soc. of S. Aust., vol. xxiv., pt. ii., p. 86), mis-identified by Sykes as *C. platessa* Gould. This specimen is considerably smaller than the type which was described by me, 3rd September, 1900. It is a wonder that so good an observer as Mr. Sykes overlooked the deep pits or grooves that traverse the pleural area in the median valves—a feature that so clearly distinguishes this species from *C. platessa*, Gl. Possibly it was only examined when wet, as this feature might then be easily overlooked. Unless the specimen taken by Dr. Thiele in Western Australia is referable to this shell, previously to this identification the type was unique. As both were dredged it is undoubtedly a deep water species, and a very interesting addition to the Victorian fauna. Sykes says that he examined it with specimens in the British Museum, named *C. platessa*, Gould, which raises the question as to the possibility of the shell I named *rufus* being the same shell that Gould called *platessa*. But this contention seems quite out of the question, for, while *C. platessa*, or the shell we have been in the habit of calling by that name, is quite common at Port Jackson, the shell we are now discussing is not known from that locality at all. A reference to Gould's description in his "Otia Conchologica," which I now append, supports this view, for he makes no reference to the deep grooves so characteristic of *C. rufus*. The following quotation covers all his reference to the pleural areas in which the deep grooves are situated: "Areis centralibus lineis confertis acutis granulatis arcuatim decussatis." As compared with *platessa* this specimen shows three distinct longitudinal grooves, which are absent in the former species, the shell is more carinated than *platessa*, lateral area more raised, is more beaked, also the girdle scales are broader and shorter than *platessa*. It corresponds with type of *C. rufus*, Ashby, except that it is a juvenile, one-quarter the size, and is more beaked than the type.

*Stenochiton pallens*, Ashby. Mis-identified by Sykes as *S. juloides*, Ad. and Ang. Curiously enough this species was described by myself in the same paper as the previous one. The few specimens known have all been dredged. Messrs. Gatliff and Gabriel sent me this specimen to compare with the type in

1917, and they corrected the mis-identification of Sykes in vol. xxx., pt. i., of these Proceedings.

*Ischnochiton torri*, Iredale and May, appears in Sykes' paper as *Ischnochiton ustulatus*, Reeve.

Note.—Mr. W. L. May has referred me to a note contained in a letter addressed to himself by Mr. Tom Iredale on 26th April, 1916, which reads: "*Ustilatus*, Reeve, has girdle scales almost as large as *decussatus*, and specimens dredged in Port Phillip almost exactly agree. Sykes recorded it, and I think he was right." Mr. Jas. A. Kershaw has been good enough to return to me for further examination the specimen Sykes so determined, as, in the first examination, I cannot remember having paid particular attention to the girdle scales. This second examination confirms my earlier determination; the scales are quite typical, and it in every respect corresponds with the South Australian shells named by Iredale and May *Ischnochiton torri*.

*Ischnochiton crispus*, Reeve. Identified as such by Sykes. Specimens are large, not very well preserved, typically varied, one form being described by Sykes as variety *decoratus*. Type No. 890.

*Ischnochiton crispus*, Reeve, var. *decoratus*, Sykes.

*Ischnochiton falcatus*, Hull, mis-identified by Sykes as *I. tateanus*, Bed. While this interesting shell, so well described by Mr. A. F. Basset Hull, is easily separated from *I. tateanus*, a good many workers have at times confused them. The latter has the serrations of posterior margins of median valves "file like," and *falcatus* straight.

*Ischnochiton wilsoni*, Sykes. Type. One of Sykes' new species, and a very fine one too, and still a rarity.

*Ischnochiton iredalei*, Dupuis, Auct. *lineolatus*, Blainville. Iredale and May, Auct., *contractus*, Reeve, Pilsbry, and identified as *I. contractus*, Reeve, by Sykes. Many of these specimens are so stained that identification is not very accurate.

*Ischnochiton virgatus*, Reeve. Marked in Sykes' list as *Ischnochiton* (?) sp.

*Ischnochiton (Haploplax) pura*, Sykes. Type. This is still a rare species, and up to the present, only taken in Victoria.

*Ischnoradsia evanida*, Sowerby. Identified by Sykes as *I. australis*, Sow., of which it is a sub-species.

*Heterozona cariosus*, Pilsbry. A good series identified under this name by Sykes.

*Plaxiphora albida*, Blainville, syn. *petholata*, G. B. Sby., and so identified by Sykes.

*Acanthochiton bednalli*, Pilsbry. One specimen only, correctly identified by Sykes.

*Acanthochiton pilsbryi*, Sykes. Type. After careful cleaning this type specimen was found by the writer to be conspecific with *A. maughani*, Torr and Ashby, and fully described by him in Trans. Roy. Soc. of S. Aust., vol. xliii, 1919.

*Acanthochiton gatliffi*, Ashby. This specimen was marked (?) *A. bednalli*. A second specimen is in the collection (9 G.P.B.) misidentified by Sykes as *A. bednalli*. I have placed this in a separate capsule. Of these two specimens one is in fair condition, the other eroded. It is remarkable that these specimens have for so many years been in this collection, and yet no worker has noticed their distinguishing characters. I only described this species last year from a specimen collected by myself at Port Lincoln, South Australia.

*Acanthochiton (Notoplax) matthewsi*, Bed. and Pils. Identified as such by Sykes.

*Acanthochiton (Notoplax) speciosus*, H. Adams. Identified as such by Sykes.

*Acanthichiton wilsoni*, Sykes. Type. Afterwards described by Dr. Torr under the name of *levis*, which becomes a synonym. This is a very fine species. The little, somewhat eroded specimen numbered 909 is, I think, referable to this species, but no mention is made of it in Sykes' paper.

*Acanthochiton (Notoplax) glyptus*, Sykes. Type. This is in some respects, I think, the finest of all our Australian *Acanthochitons*. As far as I am aware, only three specimens have been taken since Sykes' description was written, all three being taken by Mr. Gatliff in Victoria.

*Cryptoplax striatus*, Lamark. So identified by Sykes.

*Rhysoplax bednalli*, Pilsbry. Identified as such by Sykes. This fine Chiton is still exceedingly rare. I have only taken a single valve myself, and I believe all the very limited shells known have been dredged. The sculpture coincides so closely with *R. exoptandus* as to suggest that it is a deep water form of that species.

*Rhysoplax tricostalis*, Pilsbry. Wrongly identified by Sykes as the New South Wales shell, which had been described by A. Adams under the name of *Chiton muricatus*, a name which Sykes points out in his paper was pre-occupied, and he adopts Carpen-

ter's manuscript name of *limans* in place thereof, calling the specimens in the Wilson collection *Chiton limans*, Sykes, and giving no fresh description. A careful examination reveals the fact that the specimens to which Sykes attached the name of *limans* are really Pilsbry's shell, *R. tricostalis*, named two years earlier than the issue of Sykes' paper, the pointed scales "sub erect apices" of the shells from Port Jackson, to which Carpenter's manuscript refers, are not present in the specimens in this collection.

RHYSSOPLAX JACKSONENSIS, n.sp.

Non *Chiton muricatus*, Tilesius (Mem. Ac. St. Petersb. (1st ser.) ix., p. 483, t. 16, f. 3, 1824. See Middendorf, Mal. Ross., p. 129). *Chiton muricatus*, A.Ad. (P.Z.S., 1852, p. 91, t. 16, f. 6), not of Tilesius. *Lophyrus muricatus*, Angas (P.Z.S., 1865, p. 186, 1867, p. 222), not of Tilesius. *Chiton limans*, and *Chiton carnosus*, Carpenter MSS., is a nomen nudum. *Chiton muricatus*, A. Adams of Pilsbry (Man. Con. xiv., p. 175, pl. 37, fg. 12, 13, 1892), not of Tilesius. Non *Chitans limans*, Sykes (Proc. Mal. Soc., vol. ii., pt. 2, p. 93, July, 1896), which is not *limans* of Carpenter, but = *Chiton tricostalis*, Pilsbry (Naut., vol. viii., p. 54, 1894).

*Introduction.*—The discovery that the shells in the Wilson collection which Sykes named in 1896 as *Chiton limans*, Sykes, were really a shell described two years earlier by Dr. Pilsbry, under the name of *Chiton tricostalis*, leaves the New South Wales shell still without a name.

The name *muricatus*, given to this shell, by Adams, and adopted by both Angas and Pilsbry, as shown above, was preoccupied. Carpenter's MSS. name of *limans* cannot now be used. *Chiton limans* of Sykes now becomes a synonym of *Rhyssoplax tricostalis*. I therefore propose to name this familiar New South Wales shell *Rhyssoplax jacksonensis*, Ashby, after the famous harbour in which I collected the type.

*Description.*—The following is Pilsbry's description, under the name of *Chiton muricatus*, A.Ad., and it is, I believe, a transcription from Carpenter's manuscript. It is such an excellent description of the shell I have selected as type, that I copy it in full, supplementing it with a few additional notes of my own:—

"Shell oval, elevated, the jugum acute; mucro median, sub-prominent; olivaceous, maculated with paler; entire surface

minutely punctate; central areas having about 14 grooves on each side, obsolete in the middle; lateral areas having two riblets, sometimes bifurcating, or with another intercalated, furnished with strong acute tubercles, interstices smooth; end valves with 10-20 such riblets.

"Interior.—Anterior valve having 8, central 1, posterior valve 9 slits; teeth normal; sinus moderate; with about 15 denticles. Girdle furnished with large and small, wide, distinctly striated, elevated, acutely pointed scales. Length  $23\frac{3}{4}$ , breadth  $12\frac{1}{2}$  mm., divergence  $100^{\circ}$ ."

The shell I have selected as the type measures  $19 \times 9$  mm., but the girdle is not well spread out; another given to me by Mr. A. F. Basset Hull measures  $19 \times 11$  mm. It will be seen that these are slightly smaller than the measurements given by Pilsbry, and the number of ribs are proportionately less. Some of the ribs in the end valves bifurcate in my specimens. The ribbing in the central areas differs slightly from normal *tricostalis* of a similar size, in that they are narrow ridges, equally raised on both sides, whereas in *tricostalis* one side is more sloping, more of the nature of "weather boarding," but in both species there is a considerable range of divergence.

*Variation.*—The strong acute tubercles of the lateral ribs are much modified in some specimens. Instead of being "sharp-pointed tubercles," they are mere ridges, in this respect approaching more closely to *tricostalis*. Carpenter's manuscript name, *carnosus* probably referred to this variant. In the specimen I have chosen as type, these tubercles are characteristically sharp-pointed. In colour, there is also a considerable variation; one specimen has end valves, the whole of the ridge, and several lateral areas, pink, two valves have dark brown lateral areas and two cream. Another, not now in my collection, was mostly cream, touched up with pink.

*Habitat.*—All my specimens came from Port Jackson; the one I have selected as type I collected in the Quarantine Station there on 23rd November, 1918.

The type remains in my collection for the present, but it is intended that it shall ultimately be placed in the South Australian Museum.

*Note.*—This shell can easily be distinguished from *R. tricostalis*, Pils., and *aureo-maculata*, Bed. and Mat., by the pointed girdle scales, this feature being so prominent that it can be noted without the aid of a lens.

## LEPIDOPLEURUS.

There are two species of this genus represented in the collection. So many points of interest are involved in their identification, that they almost want a paper to themselves.

Messrs. Iredale and May, in their valuable paper (Proc. Mal. Soc., vol. xii., pts. II. and III., Nov., 1916, p. 99), discuss the question of the identification of Reeves' *Lepidopleurus inquinatus*, described as from "Van Dieman's Land; Dr. Sinclair," and conclude their discussion with these words: "However, all those we have yet examined seem to fall into *Parachiton*, since the girdle appears to be covered with slender glassy spikes, while *inquinatus* and the Neozelandic shore shells have the girdle covered with small scales," and add, "There may be a shore shell in South Australia which may bear the name of *liratus*." I show later on in this paper that, while all the species under discussion have girdles furnished with scales, they also, all, in a varying degree, have some spicules present as well. It is not at all difficult to understand why Reeves and Adams and Angas should have ignored this feature when one has seen how easily these spicules disappear, or become a negligible quantity in shells kept a long time in spirit, or that are carelessly preserved.

I have gone carefully into this question, comparing the material I have available with Reeves' description and plates of *L. inquinatus* and Adam and Angas' description of *L. liratus*, and I have come to the conclusion that we are amply justified in recognising in the South Australian shore shell the *Lepidopleurus liratus* of Ad. and Ang., and endorse the action of Sykes in recognising in some of the specimens from Port Phillip Reeves' *Chiton inquinatus*, which shell coincides with one of the forms dredged in Tasmania by Mr. W. L. May. I now separate the Neozelandic shell describing it under the name of *iredalei*, in acknowledgment of the suggestive remarks quoted above.

*Lepidopleurus liratus*, Ad. and Ang. (P.Z.S., London, 1864, p. 192, Angas l.c. 1865, p. 187.)

There are two small specimens which I consider correspond with the shore shell found, although never numerous, in all places in South Australia where I have collected. It is quite evident that the shell collected by Angas, "Under stones at low water, Yorke's Peninsula, South Australia," is the one that has been known in collections from that State as *L. inquinatus*, Reeve, but was included in my Distribution List (Trans. R. Soc.

of S. Aust., vol. xlii., 1918), under the name of *L. liratus*, Ad. and Ang., and I propose now to recognise it as such. I append in full the original description, as quoted by Pilsbry, Man. Conch. xv., p. 101: "Shell small, elongated, convex; yellowish brown, maculated with pale brown, end valves and lateral areas concentrically remotely sulcated, densely and minutely lirate, the lirae closely pustulose. Posterior valve elevated, lateral areas slightly elevated, median valves obtusely carinated in the middle; dorsal areas longitudinally lirate, the lirae closely pustulose. Girdle pale brown, densely covered with minute scales. Length 8 mm., width 4 mm. Yorke's Peninsula, South Australia, under stones at low water."

To this description I would add, the girdle is clothed with minute, irregular, mostly rather long, scales, often placed at different angles. It has a girdle fringe of spicules, and scattered spicules occur in a varying degree in different specimens. This probably constitutes a first record for the State of Victoria for this species.

Mr. Sykes did not, in his paper, distinguish this shell from those he identified as the following species.

*Lepidopleurus inquinatus*, Reeve (Con. Icon., Reeve, pl. xxiii., f. 154), of which the following is a transcription of the original description.

"*Chiton inquinatus*, the Solid Chiton. Shell oblong-ovate, terminal valves, and lateral areas of the rest concentrically, somewhat obscurely ribbed, finely, radially grooved, central areas longitudinally, finely ridged; ligament, horny, arenaceous, whitish, stained with light brown spot along the summit of each valve. Hab.—Van Dieman's Land; Dr. Sinclair. This shell is sometimes partially stained throughout with the faint brown colour which appears on the umbonal summit."

Mr. Sykes, in his paper aforesaid, page 86, identifies these specimens, of which there is a nice series, as Reeve's *inquinatus*, and says:—"Having had the advantage of separating the valves of one of Reeves' specimens, I am able to be positive of the identification."

As compared with the previous species, the granules in the longitudinal ribbing are smaller, less raised, and have a smoothed or planed off appearance. Perhaps the sculpture will be best described as ribs formed of strings of coalesced granules, whose upper sides are flattened, thus forming a continuous rib. The dorsal area is similar in sculpture, except that the ribbing is





1A



3A



2



3B



1B

narrower and more closely packed. The lateral areas are much raised, similar in sculpture to the other areas, but radial, the lines of growth in this area are marked by very coarse, concentric ribbing, or undulations, differing but little in this respect from those of *liratus*, Adams and Angas. In some of the valves the sculpture, especially towards the posterior margin, is smooth and highly polished, in this respect coinciding with the New Zealand shell.

The largest specimen, without the girdle, which is too incurved to measure, is 26 x 7 mm. In this specimen, the granules are more defined, especially in the lateral areas, and the smooth, highly polished character seemed absent.

*Girdle*.—While some of the specimens, in addition to the girdle fringe, have a few scattered spicules, the largest is almost free from them. The girdle in all is covered with minute scales, which are well described under the term arenaceous, the term used by Reeve. In this they differ from the preceding species, and still more widely from the Neozelandic shell.

*In conclusion*.—Mr. W. L. May has been good enough to lend me a specimen which he dredged in 15 fathoms in the Schouten Passage, Tasmania, adhering to shell. This is identical with the Port Phillip shells under review, although the girdle is a little more spiculose.

I cannot see any justification in assuming that Reeve's locality of Tasmania was a mistake, and that it should have been New Zealand. The character he gives of the girdle scales certainly fits this form, and not the Neozelandic shell. The only difficulty is the omission in the original description of any mention of spicules in the girdle. This may easily be accounted for as in some specimens they seem barely present at all. I therefore propose to reinstate Reeve's *inquinatus*, giving as its habitat, deepish water in Tasmania, Victoria and South Australia.

#### LEPIDOPLEURUS IREDALEI, n.sp.

The recognition of Reeve's *Chiton inquinatus* as one of the Australian shells, makes it necessary to describe the New Zealand shell under a new name, and as Mr. Tom Iredale's remarks before quoted, are a contributing factor towards the recognition of Adams and Angas' *L. liratus*, I think it is only just that the Neozelandic shell, which has so long been known under the name of *L. inquinatus*, Reeve, should bear Mr. Iredale's name, and therefore I have pleasure in calling it after him.

*Lepidopleurus iredalei* differs from *L. inquinatus*, Reeve, in that the girdle is clothed with comparatively large, flattened, irregular scales, quite different from the Tasmanian shell, in which species the scales are like minute, irregular grains of sand. In common with the other species, the girdle is furnished with a spiculate fringe, but in some of the specimens before me the girdle is almost otherwise bare of spicules. Evidently this character is not constant, for the specimen I have selected for the type has small bunches of spicules at the sutures, and in several of the others this feature is just discernible in a few places. Mr. Iredale must have overlooked this character when he placed the Neozelandic shell, and Reeve's *inquinatus* among the group that have no spicules.

Undoubtedly the New Zealand shell is barely spiculate as compared with some of the Australian species, but, as I have shown, spicules are not entirely absent. It seems doubtful whether the non-existence of spicules is a sufficient ground for generic or sub-generic separation in the *Lepidopleuridae*, for the range of divergence in this respect is very great, even in the same species.

To sum up—*L. liratus*, Ad. and Ang. is more spiculate than *L. inquinatus*, Reeve, and the latter is more spiculate than is the case with the Neozelandic shell. The latter is more rounded than the Tasmanian, and the polished appearance is more persistent.

*Colour*.—The dark specimens vary from liver brown to hazel (plate xiv., Ridgway's Colour Standards), and the lighter colour in the paler forms is cinnamon (pl. xxix).

*Measurement*.—The largest of the specimens before me is 14 x 7 mm., and the one I have selected as the type, because it shows the sutural spicules more distinctly, is 8 x 4½ mm., dry specimens.

*Habitat*.—The type is from Doubtless Bay, New Zealand, collected by Mr. Albert E. Brooks, to whom my acknowledgments are due for the specimens.

I cannot separate the Doubtless Bay specimens from one from Auckland Harbour, collected by the late Mr. Suter in 1895. The type, for the present, remains in my possession.

## DESCRIPTION OF PLATE VIII.

- Fig. 1a. *Rhysoplax jacksonensis*, Ashby. Shell, x nearly 5.  
,, 1b. ,, ,, showing pointed girdle  
scales, x 28.  
,, 2. *Rhysoplax tricostalis*, Pilsbry, showing girdle scales,  
x 28.  
,, 3a. *Lepidopleurus iredalei*, Ashby. Shell, x 10.  
,, 3b. ,, ,, showing portion of valves  
and flat, irregular, girdle scales, x 28.